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A NEW SPECIES OF *ERIGERON* (ASTERACEAE: ASTEREAE) FROM NORTHWESTERN NEW MEXICO

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ABSTRACT

A new species of *Erigeron* is described from the Zuni Mountains of McKinley County, New Mexico: **E. sivinskii**. It is most closely related to *E. consimilis* and *E. nematophyllus*.

KEY WORDS: *Erigeron*, Astereae, Asteraceae, New Mexico

Erigeron sivinskii Nesom, *sp. nov.* TYPE: UNITED STATES. New Mexico: McKinley Co., Zuni Mts., E side of Six-Mile Canyon, T14N, R15W, Sec. 18, NW 1/4, 2200 m, several hundred plants on steep, eroded shale slopes of the Chinle Formation, with an abundance of barite nodules on the surface, associated with pinyon-juniper, *Swertia radiata*, *Cryptantha fulvocanescens*, and *Chrysothamnus nauseosus*, 3 Jun 1991, *Robert Sivinski & K. Lightfoot 1687* (HOLOTYPE: UNM; Isotype: TEX!).

Erigeronti consimilo Cronq. similis sed differt caulibus foliatis, caulibus foliis phyllariisque sparsim pubescentibus, capitulis minoribus radiis paucioribus, et acheniorum ciliis marginatis leniter evolutis.

Perennial herbs arising from a thick taproot with numerous, short (1-3 cm), ascending-erect caudex branches, the upper portion of these with adherent, old leaf bases. Stems erect, 5-8 cm tall, unbranched, green, sparsely strigose with white, stiff, filiform, closely appressed trichomes evenly distributed and of even length (0.2-0.3 mm long), eglandular. Leaves green, similar in vestiture to the stems, arising in dense basal clusters from the caudex apices, erect to ascending erect, linear, mostly 12-30 mm long, 0.5-0.8 mm wide, definitely thickened, slightly flaring at the very base, the cauline strictly ascending and continuing relatively unreduced in size half way to nearly all the way up the

stems. Heads solitary, terminal, cupulate, 10-14 mm wide (pressed); phyllaries in 2-3 subequal series, 5-6 mm long, linear-lanceolate with acuminate apices, relatively thin herbaceous, narrowly lanceolate with attenuate-filiform apices, minutely but prominently granular-glandular, the outer also sparsely pilose with a few (ca. 10-20 per phyllary), crisped-spreading hairs arising from along the midregion. Ray flowers 21-33, the corollas 7-9 mm long, ligules 1.0-1.5 mm wide, white with a lilac midstripe, distinctly coiling from the apices with maturity. Disc corollas 3.0-3.8 mm long, narrowly funnelform, not strongly inflated or indurated, glabrate; style branches 0.5-0.6 mm long, the collecting appendages deltate to shallowly triangular, 0.1-0.2 mm long. Achenes 2(-3) nerved, narrowly oblong, 2.8-3.1 mm long, the faces glabrous, the margins very sparsely ciliate; pappus of 21-27 barbellate bristles, with a prominent outer series of setae 0.4-0.6 mm long. Known only from the area of the type locality, named for its collector, Robert C. Sivinski, endangered species botanist for the New Mexico Forestry Division.

Additional collections examined: UNITED STATES. New Mexico: McKinley Co., Zuni Mts., Six-Mile Canyon (type locality): 25 May 1990, *Robert Sivinski & A. Cully 1425* (UNM); T14N, R15W, Sec. 7, SW 1/4, several dozen plants on hard, sodic shale outcrop of Chinle Formation, in pinyon-juniper with *Sarcobatus vermiculatus* and *Hilaria jamesii*, 3 Jun 1991, *R. Sivinski & K. Lightfoot 1686* (TEX, duplicate at UNM not seen).

Plants of *Erigeron sivinskii* Nesom are very similar and clearly closely related to those of *E. consimilis* Cronq., which occurs in western Colorado, eastern Utah, and northeastern Arizona. Plants of both taxa produce a taproot with thick caudex branches, linear, erect, and densely massed basal leaves, solitary heads, ray flowers with coiling ligules, achenes with glabrous faces and ciliate margins, and a pappus with a prominent outer series of setae. The vestiture of minute, white, closely appressed trichomes is particularly distinctive and, with the coiling ligules, is a critical factor in the placement of these species in sect. *Wyomingia* (A. Nels.) Cronq. (Cronquist 1947; Nesom 1989). The nature of the relationship between the typical members of this section, however, and the "*E. compactus* group," of which *E. sivinskii* and *E. consimilis* are members, remains unclear.

On the basis of their strong similarity and relatively less marked disparity, Blake (1950) considered *Erigeron consimilis* to be only varietally distinct from *E. compactus* S.F. Blake, which occurs from eastcentral California through Nevada to western Utah. These two taxa also were recently treated as varieties of a single species by Welsh (1983), although neither he nor Blake noted the occurrence of intermediates. According to data given by Welsh (1983) and Albee *et al.* (1988), the two are strongly allopatric in Utah where their ranges approach each other; Welsh characterized their ranges in Utah as "Great Basin" (*E. compactus*) vs. "Colorado Drainage system" (*E. consimilis*). Each of the two taxa is geographically widely distributed, and although the populations of

each appear to be relatively widely isolated, both taxa appear to be constant in the morphological features that distinguish them. Although *E. compactus* is closely similar to *E. consimilis*, Cronquist's initial characterization (1947) of the latter as a separate species remains justifiable.

Erigeron sivinskii occurs near the southeastern corner of the range of *E. consimilis* and can be regarded as a third segment of the *E. compactus-E. consimilis* lineage. Compared to *E. sivinskii*, however, *E. consimilis* produces scapose stems, densely invested stems, leaves, and phyllaries, shorter leaves (5-20 mm long), larger heads (15-20 mm wide) with more numerous rays (30-55 per head), and achenes with strongly developed marginal cilia. Even at the closest geographical approach of the two taxa, there is no evidence of intergradation. Further, several features of the McKinley County plants are more similar to another closely related species of the *E. compactus* group of sect. *Wyomingia* (Nesom 1989), *E. nematophyllus* Rydb., which ranges from southwestern Wyoming through western Colorado and into adjacent Utah. As in *E. nematophyllus*, the vestiture of *E. sivinskii* is sparse and the leaves are basal as well as disposed along at least the lower portion of the stem. Thus, while it shares distinctive and probably specialized features of leaf shape and achene vestiture with *E. consimilis*, *E. sivinskii* is more similar to *E. nematophyllus* in leaf disposition and vegetative vestiture. The New Mexico population occurs outside of the geographical range of both its closest relatives, and to best account for its somewhat intermediate morphological position between them, treatment as a separate species is warranted.

Erigeron untermannii Welsh & Goodrich and *E. carringtoniae* Welsh, which were tentatively included in the *E. compactus* group (Nesom 1989), are different in vestiture, leaf shape, and achenal pubescence from the species discussed above and are more distantly related, if they belong with the group at all. The following key distinguishes *E. sivinskii* and its closest relatives.

1. Leaves mostly (2-)4-8 cm long, often apically broadened (1.5-2.2 mm wide), the lower margins ciliate; persistent portion of old basal leaves relatively long and slender-fibrous; achene faces pubescent, marginal cilia weakly developed or undifferentiated; outer pappus weakly developed. ..... *E. nematophyllus*

1. Leaves mostly 1-3 cm long, usually strictly linear (0.5-1.4 mm wide), eciliate; persistent portion of old basal leaves short and broad; achene faces completely glabrous, marginal cilia present; outer pappus of numerous, prominent setae. ..... (2)

    2. Stems, leaves, and phyllaries green, sparsely short strigose; stems with relatively unreduced leaves on at least the lower half; phyllaries relatively thin herbaceous; achene margins sparsely ciliate. ..... *E. sivinskii*

2. Stems, leaves, and phyllaries gray-green, densely short strigose; stems essentially scapose, sometimes with a few, small, scattered bracts; phyllaries distinctly thickened along the margins; achene margins densely ciliate. ..... (3)

3. Phyllaries spreading-hispidulous with thick based trichomes; heads 15-20 mm wide; rays 30-55. ..... *E. consimilis*

3. Phyllaries strigose with thin based trichomes; heads 8-15 mm wide; rays 15-32. ..... *E. compactus*

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